

## CLAIMS

### We claim:

1. A test method, comprising:  
setting an overdrive;  
5 measuring a contact resistance of at least one channel in each of a plurality of dies on  
a wafer;  
computing a per channel standard deviation responsive to measuring the contact  
resistance;  
comparing the standard deviation on the at least one channel to a threshold; and  
10 increasing the overdrive responsive to comparing the standard deviation.
2. The test method of claim 1 where measuring the contact resistance on the at  
least one channel comprises:  
forcing a current through the at least one channel;  
15 measuring a voltage on the at least one channel; and  
calculating the contact resistance responsive to the forcing and measuring.
3. The test method of claim 1 where measuring the contact resistance comprises  
measuring the contact resistance on all channels on each of the plurality of dies.  
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4. The test method of claim 1 where measuring the contact resistance comprises  
measuring contact resistance on a group of channels on each of the plurality of dies.
5. The test method of claim 1 where measuring the contact resistance comprises  
25 measuring the contact resistance of all of the dies on the wafer.
6. The test method of claim 1 where measuring the contact resistance comprises  
measuring the contact resistance of a group of dies on the wafer.
- 30 7. The test method of claim 1 comprising establishing a bare contact with the at  
least one channel on each of the plurality of dies prior to setting the overdrive.

8. The test method of claim 1 comprising comparing the overdrive to an overdrive limit prior to measuring the contact resistance.

5 9. The test method of claim 1 comprising increasing the overdrive if the standard deviation on the at least one channel of each of the plurality of dies is less than the threshold.

10 10. The test method of claim 1 comprising repeating measuring the contact resistance and computing the standard deviation responsive to comparing the standard deviation.

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11. A test apparatus, comprising:  
means for setting an overdrive;  
means for measuring a contact resistance on each of a plurality of dies in a wafer;  
means for computing a standard deviation for each contact resistance measured  
15 responsive to the means for measuring the contact resistance; and  
means for increasing the overdrive responsive to the means for computing the standard deviation.

20 12. The test apparatus of claim 11 where the means for measuring the contact resistance includes means for measuring a contact resistance on at least one channel in each of the plurality of dies.

25 13. The test apparatus of claim 11 comprising means for establishing a bare contact with each of the plurality of dies on the wafer.

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14. The test apparatus of claim 11 comprising means for comparing the overdrive to an overdrive limit prior to measuring the contact resistance.

30 15. The test apparatus of claim 11 where the means for increasing the overdrive increases the overdrive if the standard deviation is less than a predetermined threshold.

16. A wafer test system, comprising:  
a tester capable of generating wafer test signals;

a wafer including a plurality of dies, each die having a plurality of channels;  
a probe head including a plurality of pins capable of probing the plurality of channels  
on each of the plurality of dies on the wafer; and

a chuck capable of placing the wafer in contact with the probe head;  
5 where the tester is capable of:

communicating an overdrive to the chuck, the chuck moving the wafer  
towards the probe head responsive to the overdrive;

measuring a contact resistance of at least one channel in each of the dies of  
the wafer using the probe head;

10 computing a per channel standard deviation responsive to measuring the  
contact resistance;

comparing the standard deviation on the at least one channel to a threshold;  
and

increasing the overdrive responsive to the comparison.

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17. The wafer test system of claim 16 where the tester is capable of measuring the  
contact resistance by:

forcing a current through the at least one channel;

measuring a voltage on the at least one channel; and

20 calculating the contact resistance responsive to the forcing and measuring;

18. The wafer test system of claim 16 where the tester is capable of measuring the  
contact resistance by measuring the contact resistance on all channels on each of the plurality  
of dies.

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19. The wafer test system of claim 16 where the tester is capable of measuring the  
contact resistance by measuring the contact resistance on a group of channels on each of the  
plurality of dies.

30 20. The wafer test system of claim 16 where the probe head is capable of  
establishing a bare contact with all channels on each of the plurality of dies on the wafer prior  
to the tester setting the overdrive.

21. The wafer test system of claim 16 where the tester is capable of comparing the overdrive to a limit prior to measuring the contact resistance.

22. The wafer test system of claim 16 where the tester is capable of increasing the overdrive if the standard deviation on all channels is less than the threshold.

23. The wafer test system of claim 16 where the tester is capable of repeating measuring the contact resistance and computing the standard deviation responsive to comparing the standard deviation.

24. An article comprising a storage medium having stored thereon instructions, that, when executed by at least one device, result in:

- setting an overdrive;
- measuring contact resistance on at least one channel in each of a plurality of dies on a wafer;
- computing a per channel standard deviation responsive to measuring the contact resistance;
- comparing the standard deviation on at least one channel to a threshold; and
- increasing the overdrive responsive to comparing the standard deviation.

25. The article of claim 24 where measuring the contact resistance on the at least one channel comprises:

- forcing a current through the at least one channel;
- measuring a voltage on the at least one channel; and
- calculating the contact resistance responsive to the forcing and measuring.

26. The article of claim 24 comprising establishing a bare contact with all channels on each of the plurality of dies on the wafer prior to setting the overdrive.

27. The article of claim 24 comprising comparing the overdrive to an overdrive limit prior to measuring the contact resistance.

28. The article of claim 24 comprising increasing the overdrive if the standard deviation on all channels is less than the threshold.

29. The article of claim 24 comprising repeating comparing the overdrive,  
5 measuring the contact resistance, and computing the standard deviation responsive to  
comparing the standard deviation.

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